

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

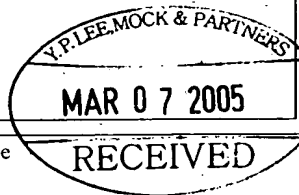
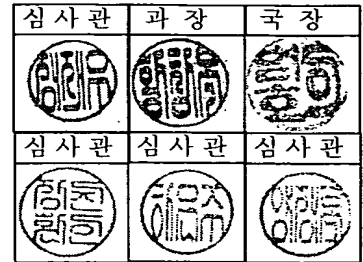
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)



Date of mailing
(day/month/year) 25 FEBRUARY 2005 (25.02.2005)

Applicant's or agent's file reference
SH-21708-PCT

RECEIVED

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/KR2004/003079

International filing date (day/month/year)

26 NOVEMBER 2004 (26.11.2004)

Priority date(day/month/year)

28 NOVEMBER 2003 (28.11.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC7 H04L 1/16

Applicant

SAMSUNG ELECTRONICS CO., LTD. et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JEONG, Jae Woo

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Form PCT/ISA/237 (cover sheet) (January, 2004)

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기밀대장
기재확인

본정서제출여부 (05.4.38)
105 (05.5.20)

10/580844

AP9 Rec'd PCT/PTO 26 MAY 2006

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2004/003079

Box No. 1 Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
- a. type of material
- ☐ a sequence listing
- ☐ table(s) related to the sequence listing
- b. format of material
- ☐ in written format
- ☐ in computer readable form
- c. time of filing/furnishing
- ☐ contained in the international application as filed.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/KR2004/003079

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 - 12	YES
	Claims		NO
Inventive step (IS)	Claims	1 - 12	YES
	Claims		NO
Industrial applicability (IA)	Claims	1 - 12	YES
	Claims		NO

2. Citations and explanations :

D1 : US 6633856 B1

D2 : US 20030074626 A1

D3 : WO 02/037731 A3

The claimed inventions disclose a low density parity check (LDPC) error correction method, which comprises determining whether a decoding of the code word vector is succeeded or not, detecting an error bit of a cord word based on the correlation among the LDPC matrix, the code word vector, and the resultant matrix, and correcting the error bit.

The citation D1 relates to a method for decoding codewords using message passing decoding techniques which are well suited for use with LDPC codes. The citation D2 relates to a method for decoding LDPC codes executing a sum product algorithm to recover. The citation D3 relates to a method of decoding a data signal using a LDPC matrix.

None of D1, D2, and D3 discloses the steps of the claimed invention, detecting an error bit of a cord word based on the correlation among the LDPC matrix, the code word vector, and the resultant matrix and correcting the error bit. Moreover, the feature of the simple error correction when only one bit error is generated is not obvious to a person skilled in the art and is not suggested in the prior art. Therefore, the claimed inventions are considered to fulfil the requirement of novelty under PCT Article 33(2) and inventive step under PCT Article 33(3).